

IN THE CLAIMS

Please cancel claims 8 and 9; replace claims 1-7 and 10-20 with the new versions shown on the following sheets; and add new claims 21 and 22.

*In accordance with 37 C.F.R. § 1.121(c)(ii), marked-up version(s) of the amended claim(s) showing the changes made thereto, are provided on separate sheet(s) at the end of this response under the heading of Marked-up Versions of Amended Claims.

1. (Once amended) A gas separator for separating a specific gas from a mixed gas, comprising:

- an outer casing;
- a rotating body disposed inside the casing;
- a drive device which drives the rotating body to rotate within the casing;
- first and second independent gas flow path structures, the first gas flow path structure being adapted to guide a flow of a mixed gas along a first gas flow path which extends through the casing from a supply port to a discharge port and over a gas absorption/releasing material that is supported in the rotating body, the gas absorption/releasing material being selected to absorb and release a specific gas which is a constituent of the mixed gas depending on temperature, the second gas flow path structure having a recovery port structure via which the specific gas, which is released from the gas absorption/releasing material, is discharged from the casing; and

first and second temperature adjusting fluid flow path structures respectively adapted to convey first and second temperature adjusting fluids through the casing, the first temperature adjusting fluid flow path structure directing the first temperature adjusting fluid through a first zone within the casing to which a sector of said rotating body is exposed and establishing a first temperature in the first zone at which the specific gas is released from the gas absorbing/releasing material, the second temperature adjusting fluid flow path structure directing the second temperature adjusting fluid through a second zone within the casing to which another sector of the rotating body is exposed to establish a second temperature in the second zone which promotes absorption of the specific gas by

the gas absorption/releasing material, the first gas flow path extending through the second zone.

2. (Once amended) A gas separator according to claim 1, wherein the rotating body comprises a plurality of circumferentially arranged fan-shaped hollow blocks and wherein the gas absorption/releasing material for absorbing and releasing the specific gas from the mixed gas is disposed on at least one inner surface of the blocks.

3. (Once amended) A gas separator according to claim 2, wherein the rotating body has a hollow static portion which extends along an axis about which the rotatable body is rotatable.

4. (Once amended) A gas separator according to claim 3, wherein said static portion is divided into two sections to form paths for the first and second temperature adjusting fluids of different temperatures, wherein a plurality of supply paths are formed between exterior surfaces of the plurality of the blocks and wherein sealing portions are disposed between the static portion and the rotating body and between the rotating body and the casing so as to divide the supply paths into two sections through which the first and second temperature adjusting fluids respectively flow.

5. (Once amended) A gas separator according to claim 1, wherein said rotating body rotates through a plurality of rotational positions, wherein the mixed gas is fed to said gas absorption/releasing material at a first rotating position of the rotating body which is located in the first zone, wherein the specific gas is released from the gas absorption/releasing material at a second rotational position of the rotating body which is located in the second zone, and wherein blocking portions, which are located in the casing between the first rotational position and the second rotational position, block communication between the first rotational position and the second rotating position.

6. (Once amended) A gas separator according to claim 4, wherein the first and second temperature adjusting fluid flow path structures are divided by blocking

portions so that the number of blocks in the second zone is larger than the number of blocks in the first zone.

7. (Once amended) A gas separator according to claim 2, wherein at least one of a honey-comb member and a fin member is provided in the blocks.

Cancel claims 8 and 9

10. (Once amended) A gas separator according to claim 1, wherein the specific gas is carbon dioxide and the gas absorption/releasing material is a lithium based material which reacts with the carbon dioxide to generate lithium carbonate thereby to absorb carbon dioxide and which releases the carbon dioxide by decomposition of the carbonate.

11. (Once amended) A gas separator according to claim 10, wherein the second temperature necessary for the absorption reaction of the carbon dioxide is approximately 500°C while the first temperature necessary for the release reaction of the carbon dioxide is over approximately 700°C.

12. A gas separator for separating a specific gas from a mixed gas, comprising:
an outer casing;
a rotating body disposed inside the casing, the rotating body containing a gas absorption/releasing material for respectively absorbing and releasing a specific gas from a mixed gas at different temperatures; and
a drive which rotates the rotating body;
first and second independent gas flow paths formed in the casing, the first flow path extending between a supply port and a discharge port which are located in axially opposite ends of the casing, and adapted to pass over the gas absorption/releasing material for absorbing the specific gas from a mixed gas in a first temperature zone defined within the casing, the casing further including a second temperature zone through which the rotating body rotates, the temperature of the second temperature zone being controlled by a temperature control fluid, which is passed through a temperature control fluid passage structure defined in the casing, to a level at which the specific gas which is absorbed by the gas

absorption/releasing material, is released and exhausted from the casing through a recovery port which is formed in the casing.

13. (Once amended) A gas separator according to claim 12, wherein said rotating body comprises of a plurality of fan-shaped hollow blocks, and wherein the rotating body has a central hollow static portion and supply paths formed between the blocks which comprise the temperature control fluid passage structure.

A3 14. (Once amended) A gas separator according to claim 12, wherein the specific gas is carbon dioxide and wherein the gas absorption/releasing material reacts with the carbon dioxide to form lithium carbonate thereby to absorb the carbon dioxide and releases the carbon dioxide by decomposition of the lithium carbonate.

15. (Once amended) A gas separator according to claim 14, wherein the second temperature necessary for the absorption reaction of the carbon dioxide is approximately 500°C while the first temperature necessary for the release reaction of the carbon dioxide is over approximately 700°C.

16. (Once amended) A gas separator for separating a specific gas from a mixed gas, comprising:

an outer casing;

a rotating body disposed inside the casing, the rotating body having a temperature responsive gas absorption/releasing material disposed therein for absorbing and releasing a specific gas;

a drive adapted to drive the rotating body to rotate, and

flow path means within the casing for feeding a temperature adjusting fluid for exclusively changing the temperature of the gas absorption/releasing material depending on a rotational position of the rotating body within the casing and for causing absorption and release of the specific gas in accordance with the rotational position of the rotating body.

17. (Once amended) A gas separator according to claim 16, wherein the specific gas is carbon dioxide and wherein the gas absorption/releasing material reacts with

the carbon dioxide so as to form lithium carbonate thereby absorbing the carbon dioxide and releases the carbon dioxide by decomposing the lithium carbonate.

18. (Once amended) A gas separator according to claim 16, wherein a temperature necessary for the absorption reaction of the carbon dioxide is approximately 500°C while a temperature necessary for the release reaction of the carbon dioxide is over approximately 700°C.

19. (Once amended) A gas separator for separating a specific gas from a mixed gas, comprising:

an outer casing;

A3 a rotating body disposed inside the casing, said rotating body comprising a plurality of hollow fan-shaped blocks;

a drive adapted to drive the rotating body in a predetermined direction;

a gas absorption/releasing material provided in hollow portions of the blocks and adapted to absorb and release a specific gas from a mixed gas in response to exposure to different temperature zones; and

a hollow static portion disposed at a central portion of the rotating body and having an inner hollow portion which is divided by a separation plate thereby to form two introducing path structures through which temperature adjusting fluids, having different temperatures, pass;

first and second independent gas flow path structures formed in the casing, the first gas flow path extending between a supply port and a discharge port and passing through the hollow portions of the blocks of the rotational body as the rotational body rotates in the casing, the second gas flow path having a recovery port through which the specific gas which is released from the gas absorption/releasing material, is vented from the casing.

20. (Once amended) A gas separator for separating carbon dioxide gas from a mixed gas comprising:

an outer casing;

a rotating body disposed inside the casing;

a drive adapted to drive the rotating body in a predetermined direction;

a temperature responsive carbon dioxide absorption/releasing material provided on an inner surface of said rotating body and adapted to absorb and release carbon dioxide; and

A3 a flow path means formed inside the rotating body for directing an essentially unrestricted flow of carbon dioxide containing gas through the casing and for feeding a temperature adjusting fluid through a selected portion of the rotating body, said flow path means being divided into a plurality of flow path sections by blocking portions so as to establish different temperature zones within the casing and to cause absorption and release of carbon dioxide depending on a rotational position of the rotating body within the casing.

21. (New) A gas separator according to claim 1, wherein the second gas flow path structure is such that the recovery port structure is the only port structure which fluidly communicates therewith.

A4 22. (New) A gas separator according to claim 1, wherein the first gas flow path structure and the second temperature adjusting fluid flow path structure are coextensive and wherein the mixed gas is preheated to function as the second temperature adjusting fluid.
